

Appl. No.: 09/191,629  
Amdt. dated March 3, 2004  
Reply to Office Action of January 5, 2004

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

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1. (Currently Amended) A method ~~comprising of transferring digital television data in a system having a first frame buffer and a second frame buffer, comprising the steps of:~~

storing incoming frames of digital television data in ~~the a~~ first frame buffer of an interface logic;

reading outgoing frames of digital television data from ~~the a~~ second frame buffer of the interface logic;

monitoring refresh of a display device coupled to the system, the monitoring by the interface logic; and

transmitting the outgoing frames of digital television data in the second frame buffer to a graphics controller to be displayed on the a display device when a programmed position of the display device is refreshed, ~~wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.~~

2. (Currently Amended) The method of claim 1, further comprising ~~the steps of:~~

storing the incoming frames of digital television data in the second frame buffer;

reading the outgoing frames of digital television data from the first frame buffer; and

transmitting the outgoing frames of digital television data in the first frame buffer to the display device when the programmed position of the display device is refreshed.

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3. (Currently Amended) The method of claim 1, further comprising ~~the step of:~~  
detecting whether the outgoing frames of digital television data is stored in the first frame buffer or the second frame buffer.

4. (Currently Amended) The method of claim 1, the monitoring step further comprising ~~the step of:~~  
monitoring a horizontal sync and a vertical sync of the display device.

5. (Cancelled)

6. (Currently Amended) The method of claim 1, the transmitting step further comprising ~~the step of:~~  
transmitting the outgoing frames of digital television data over a peripheral component interconnect (PCI) bus.

7. Cancelled.

8. (Currently Amended) A system ~~for transferring digital television data over a local bus,~~ comprising:  
a central processing unit (CPU);  
a graphics controller coupled to the CPU;  
a local bus coupled to the CPU and graphics controller; and  
digital television/local bus interface logic coupled to the graphics controller  
by way of the local bus, the digital television/local bus interface logic  
comprising:  
a digital television interface for receiving incoming digital television data;  
a local bus interface for transmitting outgoing digital television data to the graphics controller over the local bus;

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a first frame buffer for storing the incoming digital television data and the outgoing digital television data in an alternating manner;  
a second frame buffer for storing the outgoing digital television data and the incoming digital television data in an alternating manner; and  
a memory controller for storing the incoming digital television data to one frame buffer and reading the outgoing digital television data from another frame buffer.

9. (Original) The system of claim 8, wherein the local bus comprises a peripheral component interconnect (PCI) bus.

10. (Original) The system of claim 8, further comprising:  
a display device coupled to the local bus for receiving outgoing digital television data over the local bus.

11. (Original) The system of claim 8, wherein the memory controller stores the incoming digital television data to the first frame buffer and reads the outgoing digital television data from the second frame buffer on a first portion of a refresh of a display device and transmits the outgoing digital television data in the second frame buffer to the display device on a second portion of the refresh of the display device.

12. (Original) The system of claim 8, wherein the memory controller stores the incoming digital television data to the second frame buffer and reads the outgoing digital television data from the first frame buffer on a first portion of a refresh of a display device and transmits the outgoing digital television data in the first frame buffer to the display device on a second portion of the refresh of the display device.

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13. (Original) The system of claim 8, wherein the local bus interface monitors a refresh of a display device for receiving the outgoing digital television data.

14. (Original) The system of claim 8, wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.

15. (Original) The system of claim 8, the digital television/local bus logic further comprising:

a write state machine for detecting whether the incoming digital television data is being written to the first frame buffer or the second frame buffer.

16. (Original) The system of claim 8, the digital television/local bus logic further comprising:

a read state machine for informing the memory controller of a frame buffer from which to read the outgoing digital television data.

17. (Currently Amended) A digital television/local bus interface logic, comprising:

a digital television interface for receiving incoming digital television data;  
a local bus interface for transmitting outgoing digital television data to a graphics controller for display on a display device;  
a first frame buffer for storing the incoming digital television data and the outgoing digital television data in an alternating manner;  
a second frame buffer for storing the outgoing digital television data and the incoming digital television data in an alternating manner; and  
a memory controller for storing the incoming digital television data to one frame buffer and reading the outgoing digital television data from another frame buffer on a first portion of a refresh of a display device and transmitting the outgoing digital television data in the

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one frame buffer to the display device on a second portion of the refresh of the display device.

18. (Original) The interface logic of claim 17, wherein the local bus interface comprises a peripheral component interconnect (PCI) interface.

19. (Cancelled).

20. (Original) The interface logic of claim 17, wherein the memory controller stores the incoming digital television data to the first frame buffer and reads the outgoing digital television data from the second frame buffer on a first portion of a refresh of the display device and transmits the outgoing digital television data in the second frame buffer to the display device on a second portion of the refresh of the display device.

21. (Original) The interface logic of claim 17, wherein the memory controller stores the incoming digital television data to the second frame buffer and reads the outgoing digital television data from the first frame buffer on a first portion of a refresh of the display device and transmits the outgoing digital television data in the first frame buffer to the display device on a second portion of the refresh of the display device.

22. (Original) The interface logic of claim 17, wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.

23. (Original) The interface logic of claim 17, further comprising:  
a write state machine for detecting whether the incoming digital television data is being written to the first frame buffer or the second frame buffer.

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24. (Original) The interface logic of claim 17, further comprising:  
a read state machine for informing the memory controller of a frame buffer  
from which to read the outgoing digital television data.
25. (Currently Amended) A digital television/local bus interface logic,  
comprising:  
| a ~~first interface~~ means for receiving incoming frames of digital television  
| data;  
| a ~~second interface~~ means for transmitting outgoing frames of digital  
| television data;  
| a first ~~buffer~~ means for storing the incoming frames of digital television  
| data and the outgoing frames of digital television data in an  
| alternating manner;  
| a second ~~buffer~~ means for storing the outgoing frames of digital television  
| data and the incoming frames of digital television data in an  
| alternating manner; and  
| a ~~controller~~ means for storing the incoming frames of digital television data  
| to one ~~buffer~~ means for storing and reading the outgoing frames of  
| digital television data from another ~~buffer~~ means for storing.
26. (Currently Amended) The interface logic of claim 25, wherein the ~~second~~  
| ~~interface~~ means for transmitting the outgoing frames of digital television data  
| comprises a peripheral component interconnect (PCI) interface.
27. (Currently Amended) The interface logic of claim 25, wherein the ~~second~~  
| ~~interface~~ means for transmitting the outgoing frames of digital television data  
| transmits the outgoing frames of digital television data over a local bus.

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28. (Currently Amended) The interface logic of claim 25, further comprising:  
a ~~write-state-machine~~ means for detecting whether the incoming frames of  
digital television data is being written to the first ~~frame-buffer~~ means  
for storing or the second ~~frame-buffer~~ means for storing.
29. (Currently Amended) The interface logic of claim 25, further comprising:  
a ~~read-state-machine~~ means for informing the memory controller of one of  
the means for storing a frame buffer from which to read the  
outgoing frames of digital television data.
30. (Currently Amended) The interface logic of claim 25, wherein the first  
~~interface~~ means for receiving the incoming frames of digital television data  
comprises a digital television interface.
31. (Currently Amended) The interface logic of claim 25, wherein the means  
for storing the incoming frames of digital television data ~~controller~~ means stores  
the incoming frames of digital television data to the first ~~storing~~ means for storing  
and reads the outgoing frames of digital television data from the second ~~storing~~  
means for storing on a first portion of a refresh of a display device and transmits  
the outgoing frames of digital television data in the second ~~storing~~ means for  
storing to the display device on a second portion of the refresh of the display  
device.
32. (Currently Amended) The interface logic of claim 25, wherein the means  
for storing the incoming frames of digital television data ~~controller~~ means stores  
the incoming frames of digital television data to the second ~~storing~~ means for  
storing and reads the outgoing frames of digital television data from the first  
~~storing~~ means for storing on a first portion of a refresh of a display device and  
transmits the outgoing frames of digital television data in the first ~~storing~~ means  
for storing to the display device on a second portion of the refresh of the display  
device.

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33. (Original) The interface logic of claim 25, wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.

34. (Currently Amended) A digital television data handling system, comprising:

- a first ~~storing~~ means for storing incoming digital television data and outgoing digital television data in an alternating manner;
- a second ~~storing~~ means for storing the incoming digital television data and the outgoing digital television data in an alternating manner;
- a ~~monitoring~~ means for monitoring refresh of a display device; and
- a ~~transmitting~~ means for transmitting the outgoing digital television data in a storing one of the means for storing to the a means for controlling graphics for display on a display device when a programmed position of the display device is refreshed,

~~wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.~~

35. (Currently Amended) The system of claim 34, the means for transmitting ~~means~~ comprising:

- a means for reading the outgoing digital television data from a one of the means for storing means.

36. (Currently Amended) The system of claim 34, the means for monitoring ~~means~~ comprising:

- a means for monitoring a horizontal sync and a vertical sync of the display device.



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37. (Currently Amended) The system of claim 34, the means for transmitting ~~means-comprising~~:

a ~~detecting~~-means for detecting whether the outgoing digital television data is stored in the first means for storing ~~means-or the second means for storing means~~.

38. (Currently Amended) The system of claim 34, the means for transmitting ~~means-comprising~~:

a means for transmitting the outgoing digital television data over a peripheral component interconnect (PCI) bus.

39. Cancelled.

40. (Currently Amended) A closed loop digital television data anti-tearing system, comprising:

a central processing unit (CPU);

a local bus coupled to the CPU;

a graphics controller coupled to the local bus;

a display device for receiving outgoing digital television data from the graphics controller; and

a digital television/local bus interface logic coupled to the local bus for storing incoming digital television data and the outgoing digital television data and selectively providing the outgoing digital television data over the local bus to the graphics controller when a programmed position of the display device is refreshed,

~~wherein a refresh rate of the incoming digital television data is decoupled from a refresh rate of the outgoing digital television data.~~

41. (Original) The anti-tearing system of claim 40, further comprising:  
a core logic coupled between the local bus and the graphics controller.

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42. (Original) The anti-tearing system of claim 40, further comprising:  
a digital television decoder for providing incoming television data to the  
digital television/local bus interface logic.
43. (Original) The anti-tearing system of claim 42, further comprising:  
a digital television tuner for providing incoming digital television data to the  
digital television decoder.
44. (Currently Amended) ~~The anti-tearing system of claim 40,~~ A closed loop  
digital television data anti-tearing system, comprising:  
a local bus;  
a graphics controller coupled to the local bus;  
a display device for receiving outgoing digital television data from the  
graphics controller; and  
a digital television/local bus interface logic coupled to the local bus for  
storing incoming digital television data and the outgoing digital  
television data and selectively providing the outgoing digital  
television data over the local bus to the graphics controller when a  
programmed position of the display device is refreshed,  
wherein a refresh rate of the incoming digital television data is decoupled  
from a refresh rate of the outgoing digital television data, and  
wherein the graphics controller provides a feedback signal to the  
digital television/local bus interface logic to indicate whether the  
programmed position of the display device is refreshed.
45. (Original) The anti-tearing system of claim 44, wherein the feedback  
signal comprises a horizontal sync and a vertical sync of the display device.
46. (Original) The anti-tearing system of claim 40, wherein the local bus  
comprises a peripheral component interconnect (PCI) bus.

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47. Cancelled.

48. (Original) A dual stream digital television/local bus interface logic, comprising:

- a first digital television interface for receiving a first incoming digital television data stream;
- a second digital television interface for receiving a second incoming digital television data stream;
- a local bus interface for transmitting a first outgoing digital data stream and a second outgoing digital television data stream;
- a first frame buffer for storing the first incoming digital television data stream and the first outgoing digital television data stream in an alternating manner;
- a second frame buffer for storing the first outgoing digital television data stream and the first incoming digital television data stream in an alternating manner;
- a third frame buffer for storing the second incoming digital television data stream and the second outgoing digital television data stream in an alternating manner;
- a fourth frame buffer for storing the second outgoing digital television data stream and the second incoming digital television data stream in an alternating manner; and
- a memory controller for storing the first incoming digital television data stream to the first frame buffer or the second frame buffer and reading the first outgoing digital television data stream from the second frame buffer or the first frame buffer on a first portion of a refresh of a display device, storing the second incoming digital television data stream to the third frame buffer or the fourth frame buffer and reading the second outgoing digital television data stream from the fourth frame buffer or the third frame buffer on the first portion of the refresh of the display device, transmitting the first

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outgoing digital television data stream to the display device on a second portion of the refresh of the display device, and transmitting the second outgoing digital television data stream to the display device on the second portion of the refresh of the display device.

49. (Original) The interface logic of claim 48, wherein the local bus interface comprises a peripheral component interconnect (PCI) interface.

50. (Original) The interface logic of claim 48, wherein a refresh rate of the first outgoing digital television data stream is decoupled from a refresh rate of the first incoming digital television stream and a refresh rate of the second outgoing digital television data stream is decoupled from the refresh rate of the second incoming digital television data stream.

51. (Original) The interface logic of claim 48, further comprising:  
a local bus interface buffer for receiving and storing the first outgoing digital television data stream from the first frame buffer and the second frame buffer and for receiving and storing the second outgoing digital television data stream from the third frame buffer and the fourth frame buffer.

52. (Original) The interface logic of claim 48, further comprising:  
a first set of digital television interface buffers coupled to the first digital television interface for receiving a first incoming digital television data stream; and  
a second set of digital television interface buffers coupled to the second digital television interface for receiving the second incoming digital television data stream.

53.-61. (Cancelled).